

Pressure Transmitter PTI For Industrial Applications

CERTIFICATIONS



DESCRIPTION

The pressure transmitter PTI has been designed for industrial applications with static and dynamic pressure. The transmitter has an excellent long term stability, also under dynamic pressure with positive and negative pressure peaks.

The measuring ranges cover from 50 mbar up to 2,500 bar. The wetted parts (pressure port and measuring element) consist of stainless steel and can be used under harsh environmental conditions. The pressure port and measuring cell are welded together enabling the sensor to withstand shock and vibration.

PTI pressure transmitters offer a variety of pressure & electrical connections and therefore are an optimal solution to different applications.

Optional cooling element enables pressure measurement of high temperature medium up to 250 °C.

Optionally, adjustment screws for zero offset and span are available.

The PTI pressure transmitter complies with electromagnetic compatibility requirements (EMC) as per EN 61326.



MEASURING RANGES / OPTIONS

Gauge pressure:

- Positive: 0...0.05 bar to 0...2,500 bar
- Compound: -1...0 bar to -1...60 bar

Absolute: 0...1 bar to 0...50 bar

FEATURES

- Measuring ranges from 50 mbar to 2,500 bar
- Calibration of all pressure ranges below the maximum pressure feasible
- Corrosion resistant, stainless steel design
- Robust against shock and vibration
- Dynamic and static measurements feasible
- Simple installation
- CE, RoHS confirm

APPLICATIONS

- Machinery
- Semiconductor
- Hydraulics and Pneumatics
- Heavy Industry
- Chemical Industry

SPECIFICATIONS

Model	PTI			Options
Pressure Type	Positive Gauge		Compound Gauge	Absolute
Pressure Range	0...0.05 bar to 0...2.500 bar		-1...0 bar to -1...60 bar	0...1 bar to 0...50 bar
Overpressure Limit	X 2 (\leq 700 bar)		X 1.5 ($>$ 700 bar)	
Burst Pressure	X 3 (\leq 700 bar)		X 1.6 ($>$ 700 bar)	
Accuracy¹	$\leq \pm 0.5\%$ of FS $\leq \pm 0.25\%$ of FS (Only for measuring range >0.25 bar)			
Non-Linearity	$\leq \pm 0.2\%$ of FS BFSL (per IEC 61298-2)			
Non-Repeatability	$\leq \pm 0.1\%$ of FS (per IEC 61298-2)			
Setting Time	≤ 1 ms			
Measuring Rate	200 Hz			
Output Signal 2-wire (A): 4...20 mA 3-wire (A): 0...20 mA 3-wire (V): 0...10 VDC 0...5 VDC 1...5 VDC 0.5...4.5 VDC	Power Supply 7...36 VDC 6...36 VDC 14...30VDC 10...30 VDC 10...30 VDC 4.5...5.5 VDC	Maximum Load R_A $R_A \leq (U_b - 10 \text{ V}) / 0.02 \text{ A}$ $R_A \leq (U_b - 3 \text{ V}) / 0.02 \text{ A}$ $R_A > \text{max. Output Signal} / 1 \text{ mA}$ $R_A > 4.5 \text{ k}\Omega$	Other Signals Feasible	
Sensor Element	Piezoresistive: ≤ 700 bar	Thin Film: >200 bar	$(> 50$ bar optional)	
Long-term Stability	0.1 % of FS / year at Reference Conditions according to IEC 61298-2			
Case	Stainless Steel 304			
Pressure Connection	G $\frac{1}{4}$ A G $\frac{1}{2}$ A	G $\frac{1}{4}$ B G $\frac{1}{2}$ B	NPT $\frac{1}{4}$ NPT $\frac{1}{2}$	Other Pressure Connections Feasible
Wetted Parts	Piezoresistive: Stainless Steel 304/316L FKM/NBR		Thin Film: Stainless Steel 17-4PH	
Electrical Connection / IP Rating	DIN EN 175301-803A: IP 65 M12x1 (4-Pin): IP67 Field Housing: IP 67		Cable Outlet: IP67 / 68 Bayonet 6-pin: IP 67	Other Electrical Connections Feasible
Electrical Protection	Short-Circuit (S+ vs. 0V)		Overvoltage (max. DC 36V)	Reverse Polarity (U _b vs. 0V)
Insulation Voltage	500 VDC			1000 VDC (optional)
Thermal Error in Compensated Range: 0...80 °C	≤ 0.25 bar: $\leq 0.4\%$ of FS / 10K > 0.25 bar: $\leq 0.2\%$ of FS / 10K			
Thermal Error on Zero	≤ 0.5 % of FS / 10 K			

FS = Full Scale

¹Including Non-Linearity, Hysteresis, Zero Point and Full Scale Error
(Corresponds to Error of Measurement per IEC 61298-2)

SPECIFICATIONS

Model	PTI		Options
Permissible Temperatures	Storage -40....100 °C	Medium -40....125 °C -40....250 °C (Cooling EL.)	Environment -20....80 °C
MTTF	> 100 years		
Conformity Pressure Equipment Directive EMC Directive Shock Resistance Vibration Resistance	CE, RoHS 97/23/EC 2004/108/EEC, EN 61326 Emission (Group 1, Class B) 1000g according to IEC 60068-2-27 20g according to IEC 60068-2-6		
Weight	Piezoresistive: approx. 0.20 kg	Thin Film: approx. 0.25 kg	

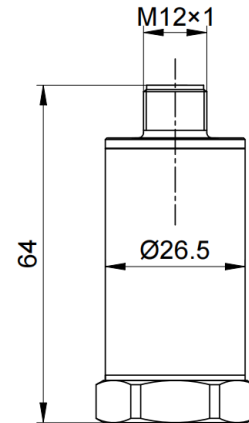
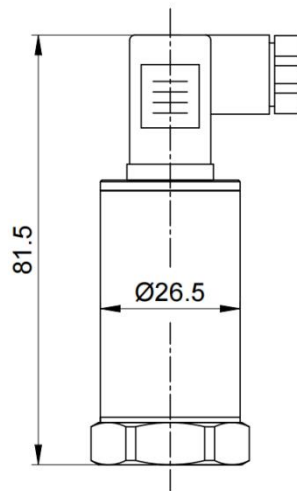
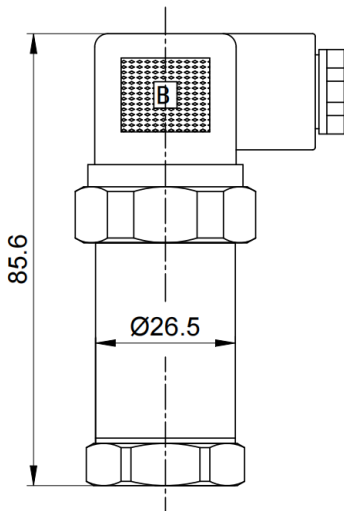
DIMENSIONS (mm)

CASE

Angular Connector
DIN EN-175301-803-A

Angular Connector
DIN EN-175301-803-C

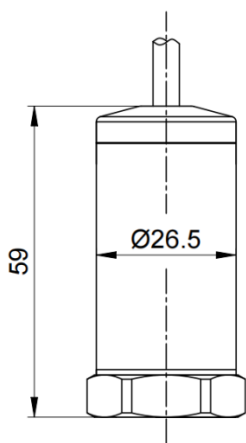
Circular Plug-In Connector M12x1
4-Pin



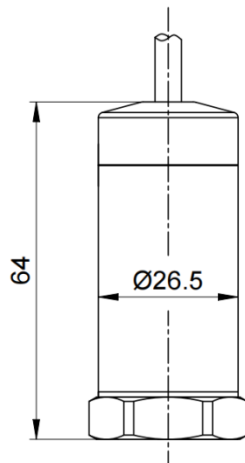
DIMENSIONS (mm)

CASE

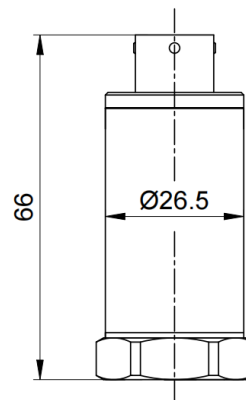
Cable Outlet With Free Ends
IP67



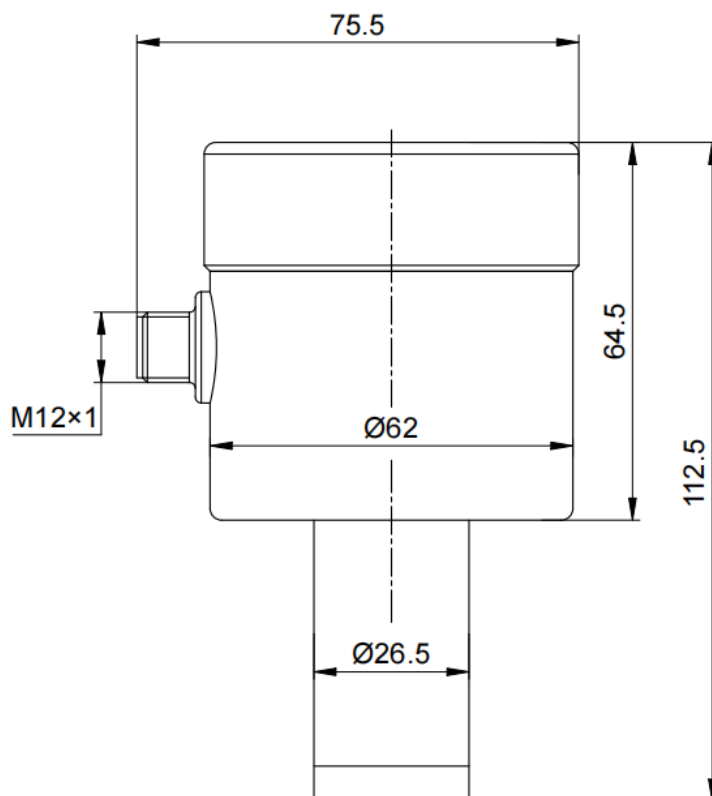
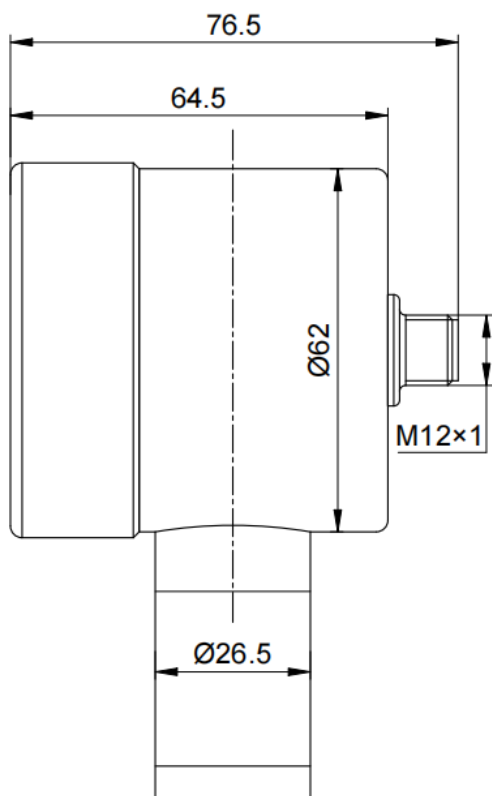
IP68



Bayonet Connector
6-Pin



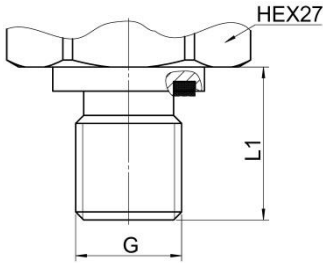
Field Housing



DIMENSIONS (mm)

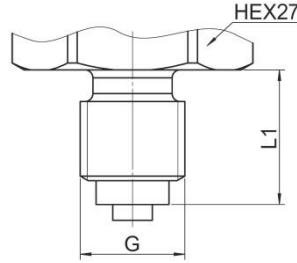
PRESSURE CONNECTIONS

G ¼ DIN 3852 (max. 600 bar)
G ½ DIN 3852 (max. 600 bar)



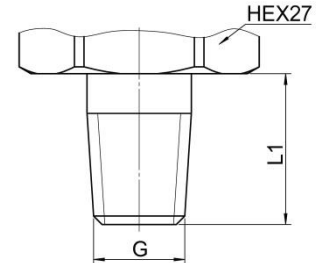
G	L1
G ¼ DIN 3852	12
G ½ DIN 3852	20

G ¼ EN 837 (max. 1.400 bar)
G ½ EN 837 (max. 1.800 bar)



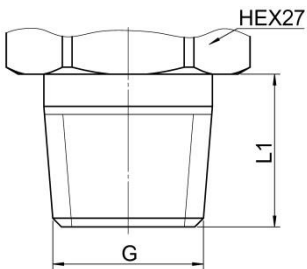
G	L1
G ¼ EN 837	13
G ½ EN 837	20

NPT ¼ (max. 1.500 bar)
NPT ½ (max. 1.500 bar)



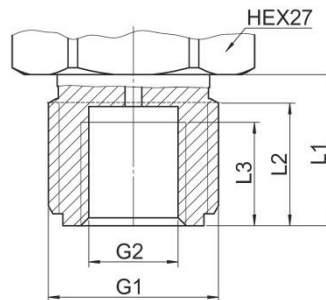
G	L1
NPT ¼	13
NPT ½	19

R ¼ ISO 7 (max. 1.600 bar)
R ½ ISO 7 (max. 1.400 bar)



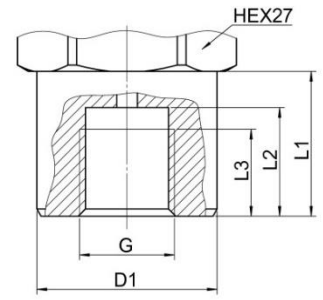
G	L1
R ¼ ISO 7	13
R ½ ISO 7	19

G ½ DIN 3852 open port
(max. 2.500 bar)



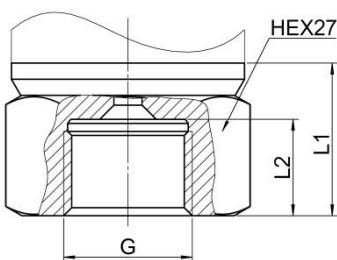
G1	G2	L1	L2	L3
G½ open port	18	15.5	14	12

G ¼ Female EN 837
(max. 1400 bar)



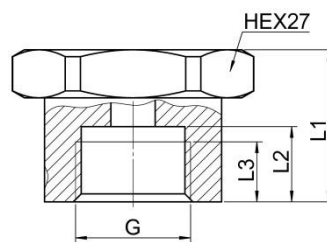
G	D1	L1	L2	L3
G ¼ Female	25	20	15	12

M16x1.5 Female
(max. 2.500 bar)



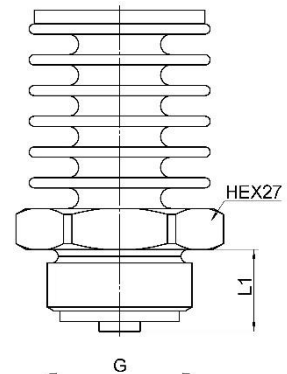
G	L1	L2
M16X1.5 Female	18.25	12

9/16-18 UNF Female
SAE J514 (max. 600 bar)



G	L1	L2	L3
9/16-18 UNF Female	18.25	11.2	10

G ½ EN 837 with Cooling Element
(max. 600 bar)



G	L1
G ½ EN 837 w. Cool. E.	20

ELECTRICAL CONNECTION

	2-wire	3-wire
<p>DIN PLUG EN 175301-803-A & C With Junction Box</p>		
<p>Circular Connector M12x1 4-Pin</p>		
<p>Bayonet Connector 6-Pin</p>		
<p>Cable Outlet With Free Ends IP67 / IP68</p>		

ORDERING CODE PTI

PTI-A-BBBB-C-DD-EEE-FF-GGG

A	Pressure	
	1	Absolute
	2	Relative

BBBB	Pressure Range (bar)							
	0500	0.05	6001	6	6003	600	Z102	-1.0...+10
	1000	0.10	1002	10	1004	1,000	Z602	-1.0...+60
	1600	0.16	1602	16	1604	1,600	Y500	-0.05...+0.05
	2500	0.25	2502	25	2504	2,500	Y101	-0.1...+0.1
	6000	0.60	4002	40	Z101	-1...+1	Y501	-0.5...+0.5
	1001	1.0	6002	60	Z161	-1...+1.6	Others on request	
	1601	1.6	1003	100	Z251	-1...+2.5		
	2501	2.5	1603	160	Z401	-1...+4.0		
	4001	4.0	2503	250	Z601	-1...+6.0		

C	Output Signal	
	1	4...20 mA, 2-wire (8-36 VDC)
	2	0...10 V, 3-wire (12-36 VDC)
	3	0.5...4.5 V, 3-wire (8-36 VDC)
	4	0.5...4.5 V, 3-wire (5 VDC)
	5	0...5 V, 3-wire (8-36 VDC)
	6	1...5 V, 3-wire (8-36 VDC)
Others on request		

DD	Accuracy (% FS)	
	02	0.25
	05	0.5
	Others on request	

EEE	Pressure Connection			
	G2A	G1/2A	G2B	G1/2B
	G4A	G1/4A	G4B	G1/4B
	NP2	NPT1/2	NP4	NPT1/4
	PT2	R1/4	PT4	R1/4
	G2O	G1/2 DIN 3852 open port		
	G4F	G1/4 Female		
	M16	M16x1.5 Female		
	M20	M20x1.5 Female		
	1UF	9/16-18 UNF Female		
	G2C	G1/2B with cooling el.		
	Others on request			

FF	Electrical Connection	
	DA	DIN EN 175301-803-A
	DC	DIN EN 175301-803-C
	M1	M12x1, 4-pin
	C1	Cable version IP 67
	C2	Cable version IP 68
	B6	Bayonet 6-pin
	FH	Field housing
Others on request		

GGG	Customized	
	111	Standard version
	222	Adjustment screw
	XXX	Customer specific

Modifications reserved